

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:
SEMICONDUCTOR ENERGY LABORATORY
CO., LTD.

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PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43 bis.1)

Date of mailing (day/month/year)	18.04.2006
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Applicant's or agent's file reference.
00000PCT8457

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/JP2005/024018

International filing date (day/month/year)
21.12.2005

Priority date (day/month/year)
24.12.2004

International Patent Classification (IPC) or both national classification and IPC
Int.Cl. *H01L21/027*(2006.01), *H01L21/20*(2006.01), *H01L21/336*(2006.01),
H01L29/786(2006.01)

Applicant
SEMICONDUCTOR ENERGY LABORATORY CO., LTD.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43 bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Date of completion of this opinion	05.04.2006
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Name and mailing address of the ISA/JP

Japan Patent Office

3-4-3, Kasumigaseki, Chiyoda-ku, Tokyo 100-8915, Japan

Authorized officer

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WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2005/024018

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of:
 - ☒ the international application in the language in which it was filed
 - ☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material
 - ☐ on paper
 - ☐ in electronic form
 - c. time of filing/furnishing
 - ☐ contained in the international application as filed
 - ☐ filed together with the international application in electronic form
 - ☐ furnished subsequently to this Authority for the purposes of search
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2005/024018

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability, citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-19	YES
	Claims		NO
Inventive step (IS)	Claims		YES
	Claims	1-19	NO
Industrial applicability (IA)	Claims	1-19	YES
	Claims		NO

2. Citations and explanations:

D1: JP 10-284418 A (SHARP KK) 1998.10.23

Claims 1-19

The subject matters of claims 1-19 do not appear to involve an inventive step in view of the document D1 cited in the ISR.

The D1 (See [0023]) discloses that mean crystal grain size differs depending on each region and generates a dimensional difference in surface unevenness of the polycrystalline silicon film.

The D1 (See [0058]) discloses:

microscope 55 for observing the surface of the glass substrate 40 on the stage 51; a CCD (Charge-Coupled Device) camera 56 mounted on the microscope 55; and an image data processing section 57 which receives an image data signal from the CCD camera 56 and operates to process and store therein the image data.

And the D1 (See [0059]) discloses that the surface of the polycrystalline silicon film 41 is observed by a dark-field method for observing the object to be observed by only the scattered light of the object.

Since, the D1 discloses *detecting the plurality of regions with scattering intensities of reflected light* depending on each crystal grain size of silicon film, the skilled person in the art would easily conceive the idea of present invention in view of the D1 and well-known art.